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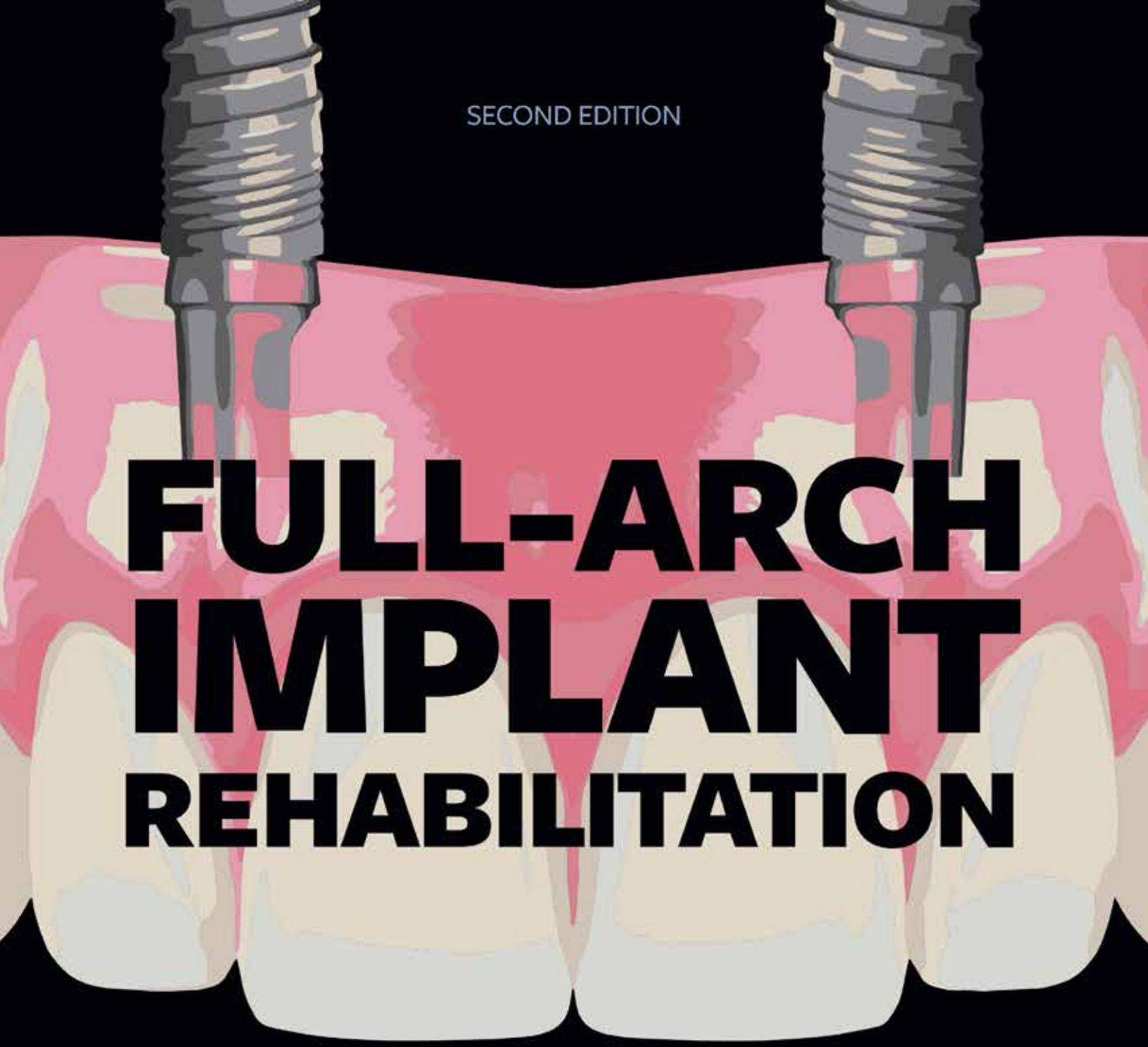

FULL-ARCH IMPLANT REHABILITATION

ARUN K. GARG, DMD

QUINTESSENCE PUBLISHING

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SECOND EDITION

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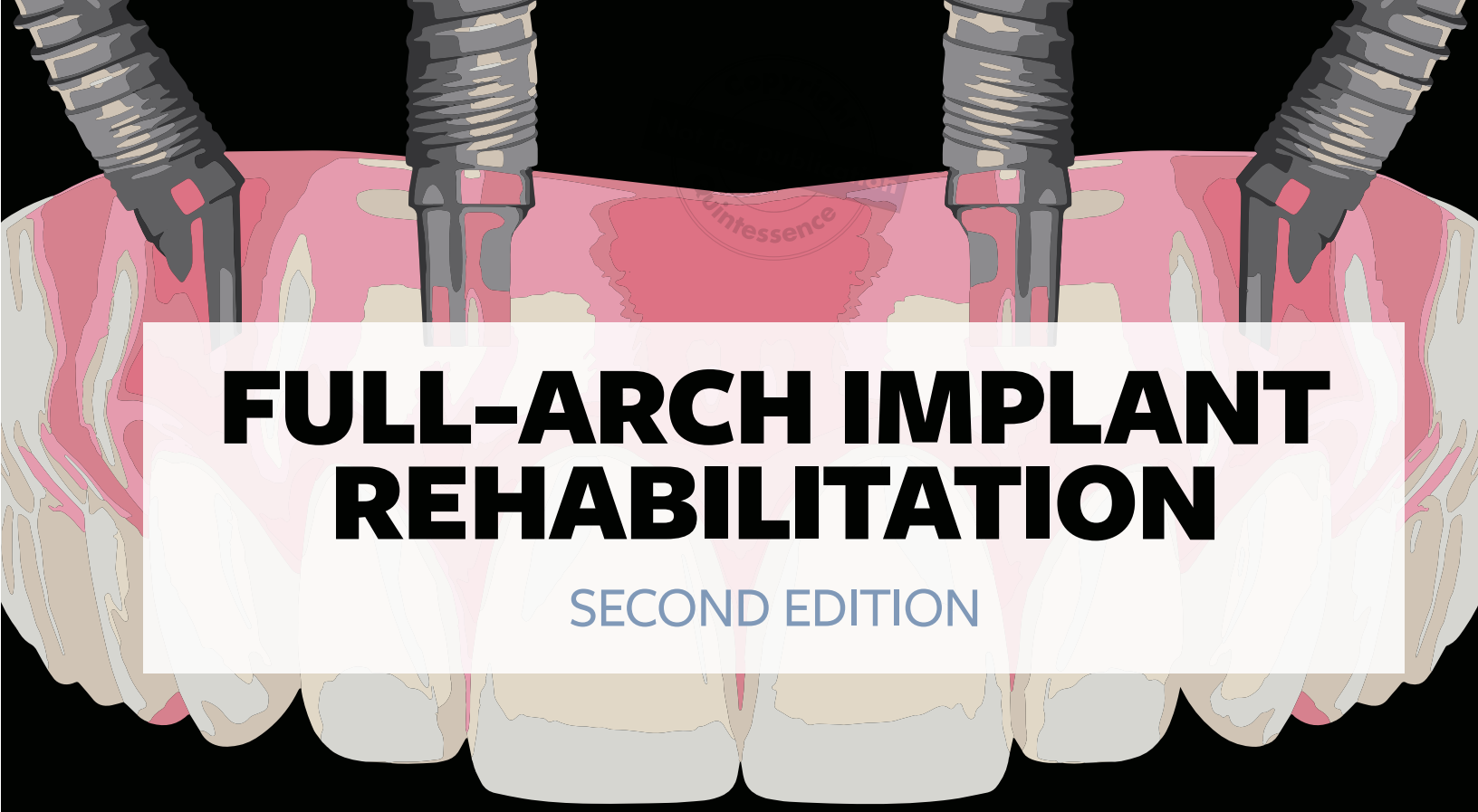

FULL-ARCH IMPLANT REHABILITATION

SECOND EDITION

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PREFACE TO THE SECOND EDITION

When the first edition of *Full-Arch Implant Rehabilitation* was released, my goal was simple: to provide a clear, practical, and comprehensive roadmap for clinicians who wanted to elevate their practice with predictable full-arch solutions. The overwhelming response from colleagues worldwide confirmed what I had long believed—that full-arch implant rehabilitation (FAIR) represents not only the most rewarding area of implant dentistry but also one of the most transformative treatments we can offer patients.

Since that first publication, the science, technology, and clinical workflows surrounding the All-on-X concept have continued to evolve rapidly. Digital dentistry has moved from being a luxury to becoming an expectation. Advances in planning software, guided surgery, restorative materials, and laboratory protocols have reshaped how we deliver treatment. At the same time, patient demand for immediate, life-changing results has never been greater.

This second edition reflects that evolution. Every chapter has been carefully updated, expanded, and refined to incorporate the latest evidence, digital protocols, and clinical pearls from my decades of teaching and practice. New sections address the nuances of digital scanning, virtual treatment planning, prosthetic materials, and the integration of platelet-rich plasma (PRP)/platelet-rich fibrin (PRF) and biologics to enhance surgical outcomes. Throughout, the emphasis remains the same: providing practical, step-by-step strategies that clinicians can implement immediately in their practices.

The book is also deeply personal. Over two decades of teaching tens of thousands of dentists around the world, I have witnessed how mastery of full-arch rehabilitation transforms not only dental practices but entire lives—restoring patients' confidence through their smiles and reigniting clinicians' passion and growth in their careers.

I am profoundly grateful to the countless colleagues, students, and patients who have taught me, challenged me, and inspired me along the way. I am equally grateful to Quintessence Publishing for their continued commitment to advancing dental education at the highest level.

It is my hope that this second edition will serve not only as a technical guide but also as a source of inspiration—reminding clinicians that when we restore a full arch, we are restoring not just teeth but also dignity, confidence, and quality of life.

CONTENTS

ADDRESSING PATIENT-PERCEIVED BARRIERS TO FULL-ARCH REHABILITATION

Full-arch implant rehabilitation (FAIR) is one of the many recent innovations in implant therapy designed to resolve the functional and esthetic problems of the millions of edentulous and nearly edentulous patients worldwide. This chapter provides guidelines for educating patients and showing them how FAIR can meet their dental needs. While this book focuses primarily on the physiologic aspects of dental restoration, it is also important to consider patient acceptance. Clinicians must understand that lack of knowledge is a significant barrier to patient acceptance of FAIR—and work to overcome it. Treatment success depends on the dentist's ability to first manage any psychosocial circumstances that might keep the patient from choosing the best rehabilitation procedure offered.

The rest of this book describes how the FAIR protocol works, who it should be used for, and methods for successfully implementing it in different patients. Several chapters describe step-by-step treatments with detailed clinical photographs documenting every stage, from initial assessment to prosthesis delivery. This introductory chapter equips dentists to confidently manage any patient-perceived barriers to dental rehabilitation, including anxieties concerning finances, esthetic/functional outcomes, and the perceived complexities of FAIR clinical procedures.

01

Patients and Edentulism

Tooth decay and periodontal disease are the most common causes of tooth loss. According to the Centers for Disease Control and Prevention (CDC), "adequate personal, professional, and population-based preventive practices, and advancements in dental treatment have helped ensure tooth retention throughout life."[1] Yet despite CDC data showing that edentulism rates for older adults have declined over the last several decades, a large segment of the aging population in the US and the world will still suffer from partial or complete edentulism within the next decade. While it is true that tooth loss is less prevalent today due to the continuity of professional and personal dental care over a person's lifetime, aging populations worldwide continue to increase the number of older adults prone to experiencing edentulism.[2–4] Furthermore, partial and complete edentulism can develop due to a variety of reasons, even when dental practitioners have provided conscientious care and their patients follow proper dental hygiene routines. In cases of inadequate professional care and/or poor patient hygiene, the incidence of edentulism can soar.[5,6]

Dental professionals must be ready to restore the dental function (chewing and speech) of edentulous patients and improve their quality of life with restored esthetics—giving them back a confident smile and laugh. Furthermore, these goals must be achieved with a minimal number of procedures at an affordable cost, without sacrificing the quality or longevity of treatment.

Fig 1-1 Tilting the posterior implants (and possibly the anterior implants as well) is key for obtaining adequate implant anchorage in a bone-deficient arch.

Fortunately, patients can choose from a range of care options for both preventing and managing edentulism. Dentists must be well-informed about the breadth of restorative options available as well as the many obstacles patients face in choosing one of those options. Clinicians must be knowledgeable about not only the various physiologic treatment options but also the psychosocial circumstances that can prevent patients from embracing certain options.[7–12]

Introducing FAIR

FAIR is just one of several modern dental protocols that have been developed to immediately restore both the esthetic and functional aspects of the dentition in one or both arches, even in the highly atrophic mandible and maxilla.[13–16] It offers patients full-arch prostheses that are immediate, fixed, loaded, esthetically pleasing, highly functional, inexpensive, maintainable, and reliable. The low-morbidity surgical and provisional restoration techniques performed as part of FAIR are done in a single visit. Usually only four or five implants are placed, including posterior tilted implants that take full advantage of the available bone and often eliminate the need for bone grafting (Fig 1-1). Generally, the total rehabilitation takes only a few hours of restorative/prosthetic procedures and provides the patient with esthetics and function far superior to that offered by traditional dentures. FAIR also has the capacity to halt and even reverse alveolar bone deterioration via implant-stimulated bone growth within the jaw, similar to that induced by natural tooth roots.[17,18] Subsequent chapters describe the specific methods for choosing and treating patients with FAIR to restore full-arch function and esthetics.

Psychosocial Barriers to FAIR Treatment

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As noted by the CDC, despite the well-documented reduction in tooth loss in the US, several segments of the population show a persistent susceptibility to single and multiple tooth loss. Tooth loss is associated with three major factors: lack of education, low income, and smoking.[1] Of course, edentulism is also more common among older Americans. A 2010 study indicated that 16.9% of US adults 65 years and older and 14.2% of adults aged 65 to 74 years were edentulous.[1] Though many potential FAIR candidates have health or dental insurance that covers a portion of dental implant rehabilitation, the patient typically still assumes the major share of the financial burden of these elective dental procedures, which may prevent them from receiving care.

It is not only those with moderate or low income who struggle with dental challenges. A significant percentage of patients with six-figure incomes also experience tooth loss, and many relatively prosperous members of the baby boom generation who have reached retirement age also require full- or partial-arch rehabilitation.[19,20]

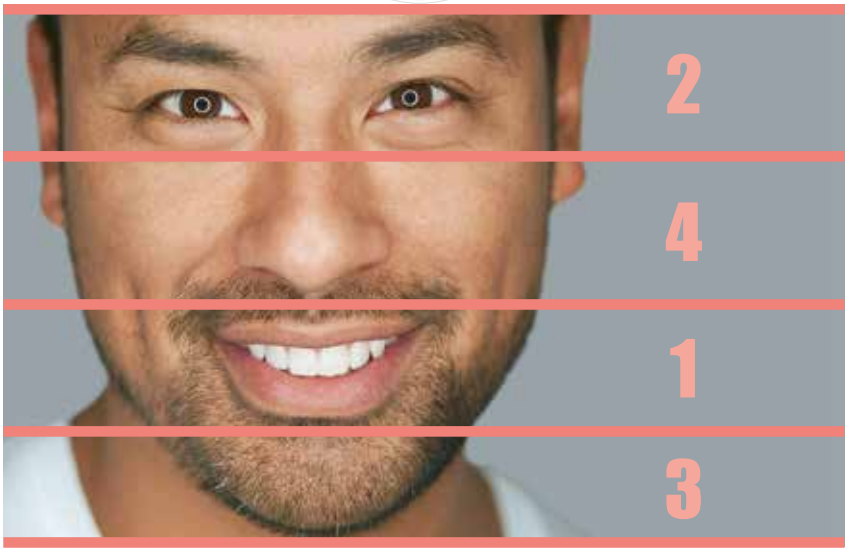

Fig 1-2 In descending order of importance, the following facial components are predictive factors for the esthetic appearance of the smiling male face: mouth, eyes, chin region, and nose.[25] These results suggest that for many people, an improvement in smile esthetics is likely to have extended positive effects on perceived facial attractiveness compared with other procedures (eg, rhinoplasty).

The perceived association of edentulism with lower socioeconomic status may itself make patients who could otherwise afford dental care reluctant to pay for dental restoration if the cost is perceived as prohibitive.[21] Clinicians should also not assume that their wealthier patients are not cost-conscious, especially after those patients have already retired.

ESTHETIC AND FUNCTIONAL OUTCOMES

In addition to financial considerations, patient perceptions regarding esthetic and functional outcomes may also contribute to reluctance to commit to treatment.[22] Patients view good dental care as directly resulting in improved dental function and overall health. In addition to believing that proper dental care can improve overall health, patients generally believe that when the dental procedure is complete, they will be satisfied with both the functional and esthetic outcomes.[12] Patients rank the importance of orofacial appearance (for example, an attractive smile and laugh) on par with pain and function when it comes to making decisions about whether to accept dental care.[23] Don't underestimate the value of esthetics in patient perceptions concerning dental care, particularly for procedures in the esthetic zone. Patients usually recognize the critical role that their smile and eyes play in social life.[24–26]

The perception of what is esthetic varies from patient to patient. In an effort to objectively quantify the results of esthetic zone procedures, researchers have used both intraoral and extraoral criteria, including general facial esthetics and the measurement of soft tissues, the smile/lip line, and incisor size and position.[24] Researchers have also attempted to determine the relative importance of individual facial features (for example, the chin, nose, and eyes) within the overall facial appearance of patients. The mouth and eyes are consistently rated as high predictors of broad esthetic appeal (Fig 1-2). Restorative dentists should consider the implications of these studies when collaborating with medical professionals specializing in other areas of facial restoration and esthetics.[25]

PATIENT PERCEPTION OF TREATMENT COMPLEXITIES

Many candidates for FAIR procedures believe that FAIR and similar protocols are overly complex. This view is based on the perception that smile-related esthetics and masticatory/speaking problems are relatively

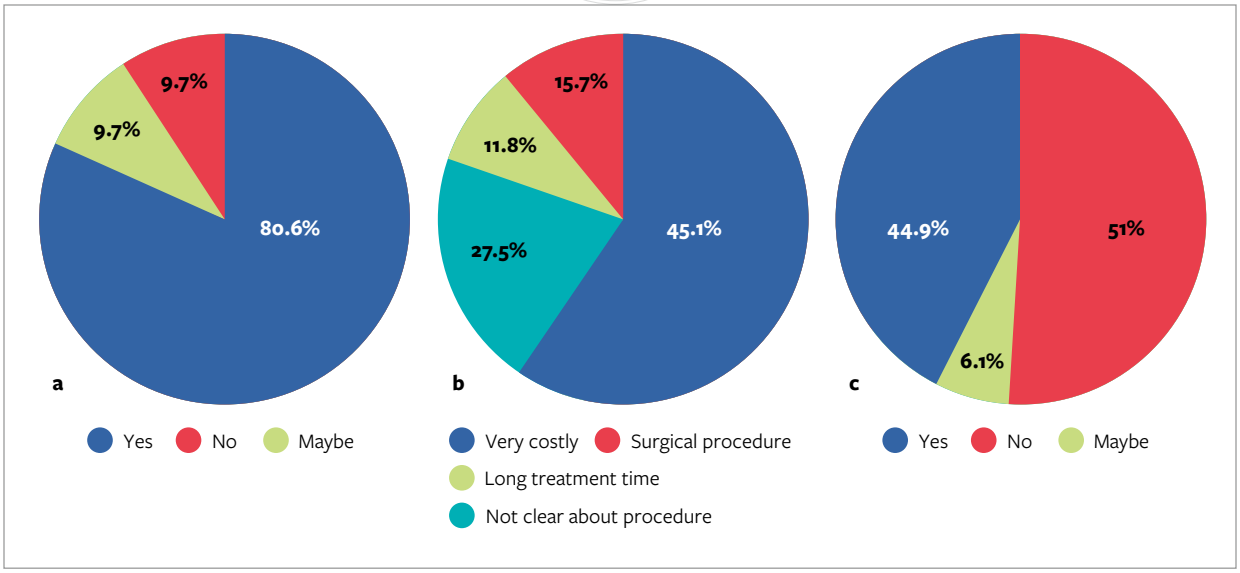

Fig 1-3 The results of a cross-sectional survey of 100 dental patients revealed that 20% of them were either unaware of or unsure regarding implant therapy as a viable treatment option for the replacement of missing teeth. Only 45% expressed a positive attitude toward implant therapy and willingness to accept the treatment if needed.[29] The graphs show how patients responded to the following questions: (*a*) Are you aware of implant therapy as a treatment option for missing teeth? (*b*) What is your reason for not opting for implant therapy (if needed)? (*c*) Are you willing to receive more information about implant therapy?

simple to correct via traditional, less complicated, and less costly means—especially with conventional dental appliances like complete dentures.[27] As a result, only a relatively small percentage of patients take advantage of the quality-of-life improvements offered by FAIR. A lack of patient knowledge about the detrimental aspects of prolonged conventional denture wear is perhaps the most crucial patient perception to correct. Patients must be shown how traditional dentures can compound esthetic and mastication problems and contribute to biologic degradation of the arches.

Patients also perceive several specific drawbacks to implant rehabilitation, including the need for more than one surgical procedure (resulting in increased cost, prolonged pain, and added inconvenience) and the required healing time (primarily because of its adverse effects on eating). However, these same patients also acknowledge the significant advantages to dental and general health and improved quality of life that implant rehabilitation provides.[28]

Generally, fear and pain rank high as deterrents to dental treatment, with dental procedure fears being higher among women than men. Patients mostly fear needle injections, tooth drilling, and dental surgery based on the pain they associate with these procedures. Good pain management and a careful explanation of procedures can help prepare patients to undergo the necessary steps of rehabilitation. Patients may be reassured to know that the quality of recovery is not affected much by whether one implant or several are placed, so fears about increased pain and inconvenience when more implants are placed are generally unwarranted.[28]

Finally, many patients simply do not realize that they are qualified candidates for FAIR procedures (Fig 1-3). Misconceptions about FAIR can be dispelled by familiarizing patients with recent trends in dental implant use, particularly in the US, including advances in digitally enhanced dentistry and bone regeneration procedures.[19,29,30]

Conclusion

The FAIR protocol is one of the newest implant therapy innovations designed to treat one or both arches of edentulous or nearly edentulous patients. The prosthesis is immediate, fixed, esthetically pleasing, highly functional, inexpensive, and maintainable, and the procedure can often be performed without the need for bone grafting.

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Although the benefits of implant rehabilitation are clear, only a small percentage of patients who could benefit from FAIR receive it. Dentists must be knowledgeable about the various treatment options available and understand how to present alternatives to patients. Additionally, dentists must understand and combat patient concerns and misconceptions that prevent them from undergoing the procedure. The FAIR protocol should be perceived by patients as simply another necessary step in the dental health care continuum.

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